

REMARKS

The Title and claims 82 and 85 have been amended. The Title and claim 82 have been amended for clerical reasons; entry of the same is requested. Claims 78-90 are pending.

Claim 85 has been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. More particularly, the Examiner has noted that there is no description in the specification as originally filed of forming a fourth layer that comprises nitride. Claim 85 has been amended to recite "The method of claim 78 wherein the third layer comprises nitride." Claim 85 is supported by the specification at, for example, Fig. 7 and page 7, line 24, and page 8, lines 1-3, where it recites "Taken together, layers 20, 22, and 24 constitute an ONO dielectric layer which constitutes a third layer". As such, it is believed claim 85 is sufficiently supported by the specification and the rejection of claim 85 should be withdrawn.

Claims 78-90 stand rejected under U.S.C. §103 as being obvious in view of the combination of Araki and the Examiner's comments.

Claim 78 recites a method of forming a floating gate transistor that includes forming an oxide-comprising layer against and physically contacting a semiconductive substrate. Claim 78 goes on to recite forming a first layer against and physically contacting the oxide-comprising layer where the first layer includes semiconductive material and a dopant with at least some of the dopant physically contacting the oxide-comprising layer. Claim 78 further recites, after forming the first layer, forming a second layer against and physically contacting the first layer with the second layer including semiconductive material and less dopant than the first layer.

Applicant wishes to thank Examiner Estrada and Primary Examiner Fourson for discussing the Araki reference during an interview of May 20th, 2004. Applicant agrees with the Examiner that Araki does not disclose forming a first layer of semiconductive material having dopant with the dopant physically contacting an oxide-comprising layer below. However, Applicant disagrees that this element is taught or suggested by the cited references, specifically Araki, particularly when the cited references are viewed as a whole.

The text of 35 U.S.C. §103 requires that “the subject matter as a whole” must have been obvious at the time the invention was made. Prior art references must be considered in their entirety *ie*, as a whole, including portions that would lead away from the claimed invention. MPEP§2141.02 citing *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant. When Araki is viewed as a whole, it teaches away from the elements of claim 78.

On pages 4 and 5 of the office action the Examiner begins by reciting that the teachings of Araki indicate that the disclosed formation of an undoped layer contacting the gate dielectric is merely desirable as opposed to necessary to produce a working device. The Examiner then recites that there is no indication that the device would be inoperable using a doped polysilicon layer contacting the gate dielectric. The Examiner further suggests that the disclosed examples and preferred embodiments of Araki do not constitute a teaching away from a broader disclosure or nonpreferred embodiments.

Applicant disagrees, and submits claim 78's limitation of forming a first layer of semiconductive material having dopant with the dopant physically contacting an oxide-comprising layer below cannot reasonably be gleaned from what the Examiner refers to as a "broader disclosure" or "nonpreferred embodiments" because Araki describes a narrow embodiment.

The method of manufacturing of Araki's invention includes forming a cell gate oxide film 103 and next forming a first polysilicon layer 104 on the cell gate oxide film 103, the first polysilicon layer 104 is formed so as to configure a three-layered structure, such as non-doped/polysilicon/impurity doped polysilicon/non-doped polysilicon. (Col 3, lines 13-30). Applicant can find no reference in Araki to another structure of the first polysilicon layer 104 other than the recited three-layered structure of non-doped/polysilicon/impurity doped polysilicon/non-doped polysilicon.

Araki literally recites the following:

According to the method of manufacturing the nonvolatile semiconductor memory of this invention, as mentioned above it is possible not only to prevent damage to the cell gate oxide film due to the impurity in polysilicon, but it is also possible to control the bottom oxide film and minimize the natural oxide film formation before the formation. It is also possible to form the bottom oxide film with an excellent film quality by preventing any impurity from being involved in the grown oxide film, which can result in a great improvement in the reliability of the element. (Col 5, lines 34-43)

As such Araki teaches that by not utilizing the three-layered structure recited by Araki, damage to the cell gate oxide film will occur as will natural oxide film formation.

In reviewing Araki as a whole, no suggestion is made for forming a first layer against and physically contacting an oxide-comprising layer where the first layer comprises semiconductive material and a dopant with at least some of the dopant

physically contacting the oxide-comprising layer, and then forming a second layer against and physically contacting the first layer where the second layer comprises semiconductive material with the semiconductive material having less dopant than the semiconductive material of the first layer.

While a reference may be relied upon for all that would reasonably be suggested to one of ordinary skill in the art it cannot be relied upon for what it does not suggest. In the present case Araki does not suggest the limitations of claim 78. As recited above, there is no embodiment either express or implied by Araki that indicates the limitations of claim 78. Araki is not an example of a reference that discloses multiple embodiments and then distinguishes embodiments by having preferable embodiments as opposed to less than optimal embodiments. Araki discloses a single three-layered first polysilicon layer 104 structure and no other alternative structures. There is no suggestion throughout Araki to change layer 104 of its Fig. 4 to the limitations recited in claim 78.

Furthermore Araki teaches away from dopant physically contacting oxide-comprising layers, (col. 4, lines 45-50), and specifically recites that according to the method of manufacturing therein disclosed it is possible to prevent damage to the cell gate oxide film which can result in great improvement to the reliability of the element. As such, Araki teaches away from its combination with other references, the comments of the Examiner, and negates any logic that would suggest the limitations of claim 78.

Because the cited references do not teach or suggest all the elements of claim 78, claim 78 is allowable.

Claims 79-90 depend from claim 78 and are allowable for at least the reasons

discussed above regarding claim 78.

This application is believed to be in immediate condition for allowance.

Therefore action to that end is earnestly solicited.

Respectfully submitted,

Dated: 5/24/04

By: 

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